

TABLE 38

Domestic R&D paid for by others and performed by the company, by type of cost, industry, and company size: 2019

(Millions of U.S. dollars)

Industry and company size	NAICS code	Total	Salaries, wages, and fringe benefits	Stock-based compensation	Temporary staffing	Expensed equipment	Materials and supplies	Lease and rental payments	Depreciation	Royalties and licensing fees	Other purchased services (except R&D)	Other
All industries	21-23, 31-33, 42-81	63,989	36,350	760	2,090	453	8,127	831	1,803	343	4,479	8,751
Manufacturing industries	31-33	37,564	22,248	430	1,193	301	6,351	432	1,051	325	899	4,335
Food	311	243	149	2	7	1	15	17	12	0	5	36
Beverage and tobacco products	312	111	63	0	5	1	8	4	9	0	13	10
Textile, apparel, and leather products	313-16	31	22	*	1	*	2	1	*	0	*	5
Wood products	321	6	4	0	0	*	*	*	*	0	*	1
Paper	322	*	*	*	*	*	*	*	0	*	*	*
Printing and related support activities	323	0	0	0	0	0	0	0	0	0	0	0
Petroleum and coal products	324	103	39 - 96	0	0 - 6	0	0 - 21	0 - 5	0 - 7	0	0 - 11	0 - 60
Chemicals	325	9,775	5,921	360	461	134	547	193	486	88	395	1,189
Basic chemicals	3251	162	108	0	0 - 21	4	13	*	15	0	4	0 - 21
Resin, synthetic rubber, and artificial synthetic fibers and filaments	3252	80	62	0	*	0	1	1	11	0	0	4
Pesticide, fertilizer, and other agricultural chemicals	3253	320 - 345	125 - 192	*	80 - 105	0 - 3	19	0 - 9	0 - 28	*	0 - 3	0 - 69
Pharmaceuticals and medicines	3254	8,966	5,456	360	351	127	503	177	423	88	386	1,097
Soap, cleaning compound, and toilet preparation	3256	164	105	*	7	*	7	8	12	*	4	20
Paint, coating, adhesive, and other chemicals	3255, 3259	56 - 84	0 - 63	0	*	0 - 5	5	0 - 9	0 - 28	0	0 - 3	0 - 63
Plastics and rubber products	326	85	58	0	*	3	13	*	1	*	1	9
Nonmetallic mineral products	327	35	20	0	0 - 6	*	2	2	2	0	0 - 11	0 - 12
Primary metals	331	16	5	0	0	0	10	0 - 2	*	0	0	0 - 2
Fabricated metal products	332	254	169	0	20	14	21	2	7	0	0 - 11	6 - 24
Machinery	333	1,254	828	*	18	11	244	6	49	4	45	49
Agricultural implement	33311	9	3	0	0	0	1	*	0	3	0	1
Semiconductor machinery	333242	604	493	0	1	1	57	1	43	*	3	7
Engine, turbine, and power transmission equipment	3336	205	127	*	0	10	43	2	3	0	2	18
Other machinery	other 333	436	205	0	18	1	143	3	3	1	40	23
Computer and electronic products	334	11,159	7,099	67	366	68	1,536	103	301	61	185	1,375
Communications equipment	3342	1,100	832	1	38	5	42	15	18	5	20	124
Semiconductor and other electronic components	3344	3,208	1,854	40	81	7	465	61	172	53	96	379

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Navigational, measuring, electromedical, and control instruments	3345	6,650	4,265	26	235	54	1,022	25	104	3	57	860
Electromedical, electrotherapeutic, and irradiation apparatus	334510, 334517	225	132	0	21	1	15	5	5	*	5	42
Search, detection, navigation, guidance, aeronautical, and nautical system and instrument	334511	6,262	4,030	24	210	49	997	19	94	3	35	800
Other measuring and controlling device	other 3345	163	103	1	4	4	11	1	6	*	17	17
Other computer and electronic products	other 334	201	148	*	i 12	1	7	1	7	*	i 11	12
Electrical equipment, appliances, and components	335	377	202	*	48	7	51	2	16	6	4	40
Transportation equipment	336	13,870	i 7,489	i 1	261	i 61	3,849	i 101	i 163	i 166	i 236	i 1,542
Motor vehicles, bodies, trailers, and parts	3361-63	3,233	i 1,674	i 0 - 1	173	i 36	328 - 757	i 84	i 106	i 137 - 167	62	i 206 - 603
Aerospace products and parts	3364	9,458	i 5,140	i 0 - 1	21 - 89	14 - 18	3,053	i 0 - 18	i 32 - 58	*	139	i 940 - 1,059
Aircraft, aircraft engine, and aircraft parts	336411-13	8,550	i 4,645	i 0	22	i 15	2,867	i 0 - 14	i 33	0	134	i 817 - 836
Guided missile, space vehicle, and related parts	336414-15, 336419	908	495	0 - 1	0 - 68	0 - 3	187	0 - 6	0 - 26	*	5	i 118 - 223
Military armored vehicle, tank, and tank component	336992	10	0 - 8	0	0 - 8	0 - 1	3	0 - 8	*	0	0	0 - 8
Other transportation	other 336	1,168	666 - 677	i 0 - 1	i 0 - 68	i 5 - 12	i 37 - 464	i 0 - 18	i 0 - 26	i 0 - 29	i 34	i 0 - 304
Furniture and related products	337	2	2	*	i *	i *	*	i *	i *	*	i *	i *
Miscellaneous	339	244	127 - 171	0	5	2	36 - 58	1	2 - 10	*	9	18 - 62
Medical equipment and supplies	3391	202	128	0	4	2	37	1	3	*	8	19
Other miscellaneous manufacturing	3399	42	0 - 43	0	*	*	0 - 21	*	0 - 7	*	*	0 - 43
Nonmanufacturing industries	21-23, 42-81	26,425	14,102	330	898	152	1,777	400	752	i 18	3,579	i 4,416
Mining, quarrying, oil and gas extraction, and support activities	21	183	69	i 0	0	*	21	i 3	6	1	i 5	i 78
Utilities	22	38	11	0 - 1	*	*	1	*	0 - 4	0	2	17 - 26
Wholesale trade	42	87	64	0	2	i 1	3	i 3	1	*	i *	12
Electronic shopping and electronic auctions	454111-12	43 - 61	16 - 61	0 - 26	*	0	0	0	0	0	0	*

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Transportation and warehousing	48-49	386	70 i	0	6 i	17 i	3 i	1 i	*	0	84 i	204 i
Information	51	1,165	887	76	21	19	21	19	23	*	42	58
Publishing	511	572	401	46	9	18	17	7	10	*	28	36
Newspaper, periodical, book, and directory publishers	5111	*	0	* i	* i	* i	* i	* i	0	0	* i	* i
Software publishers	5112	572	401	46	9	18	17	7	10	*	28	36
Telecommunications	517	33	23	0	*	0 - 2	1	0 - 10	1	*	0 - 10	0 - 10
Data processing, hosting, and related services	518	404	378	0 - 20	0 - 13	1	2	4	1	* i	2	0 - 20
Other information	other 51	155	85	10 - 31	0 - 13	0 - 2	*	0 - 10	12	0	1 - 13	0 - 23
Finance and insurance	52	28	19	0	0	0	*	0	0	0	0	9 i
Real estate and rental and leasing	53	0	0	0	0	0	0	0	0	0	0	0
Lessors of nonfinancial intangible assets (except copyrighted works)	533	0	0	0	0	0	0	0	0	0	0	0
Other real estate and rental and leasing	other 53	0	0	0	0	0	0	0	0	0	0	0
Professional, scientific, and technical services	54	24,103	12,710	229 - 255	848	115	1,693	369	719 i	16	3,445 i	3,928 - 3,960
Architectural, engineering, and related services	5413	1,919	1,185	1	61	10	257	23	11	1	97	275
Computer systems design and related services	5415	2,651	1,796	110	28	6	45	30	15	4	40	578
Scientific research and development services	5417	18,403	9,074	119	542	89	1,320	306	677 i	12	3,300 i	2,963 i
Research and development in biotechnology	541711	5,374	2,473	34	138	8	304	66	122	2	1,249 i	977
Research and development in the physical, engineering, and life sciences (except biotechnology)	541712	12,291 i	6,020	70	386	75	1,003	219 i	540 i	9	2,025 i	1,944 i
Research and development in the social sciences and humanities	541720	738	580 i	16	19	6	12	21	15	0	27 i	42
Other professional, scientific, and technical services	other 54	1,129	656	0 - 26	217	10	72	10	17	* i	8	111 - 143
Health care services	621-23	337	207	*	20	*	32	4	1	0	1	74
Other nonmanufacturing	23, 44-45 (excluding 454111-12), 55-56, 624, 71-72, 81	34 - 58	0 - 53	0	*	*	2	1	0 - 4	0	1	0 - 39

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All companies (number of domestic employees)	–	63,989	36,350	760	2,090	453	8,127	i 831	1,803	343	4,479	i 8,751
Small companies												
10–19 ^a	–	1,070	689	1	i 17	19	100	25	11	0 - 37	30	138 - 182
20–49	–	2,378	1,509	12	70	12	224	44	35	3	64	406
Medium companies												
50–99	–	2,529	1,349	14	98	21	334	59	50	6	160	438
100–249	–	3,274	1,894	78	122	i 20	357	67	70	34	132	500
Large companies												
250–499	–	3,527	1,876	74	210	28	551	69	78	14	125	503
500–999	–	2,420	1,489	11	96	24	286	36	77	8	79	314
1,000–4,999	–	11,196	6,469	257	491	86	1,117	205	553	55	630	i 1,333
5,000–9,999	–	6,083	3,497	84	222	45	500	91	i 299	50	i 665	i 630
10,000–24,999	–	13,878	i 7,957	208	428	124	i 752	149	i 385	i 141	i 2,158	i 1,576
25,000 or more	–	17,635	9,620	21	337	73	3,907	i 87	247	0 - 37	i 437	2,865 - 2,910

* = amount < \$500,000; i = > 50% of the estimate is a combination of imputation and reweighting to account for nonresponse.

NAICS = 2012 North American Industry Classification System.

^a The Business Enterprise Research and Development Survey does not include companies with fewer than 10 domestic employees.**Note(s):**

Detail may not add to total because of rounding. Industry classification is based on the dominant business code for domestic R&D performance, where available. For companies that did not report business codes, the classification used for sampling was assigned. Beginning in survey year 2018, statistics are representative of companies located in the United States that performed or funded \$50,000 or more of R&D. This change has affected the comparability of these estimates with estimates published for years prior to 2018. An estimate range may be displayed in place of a single estimate to avoid disclosing operations of individual companies.

Source(s):

National Center for Science and Engineering Statistics and Census Bureau, Business Enterprise Research and Development Survey, 2019.